

## CLAIMS:

1. An image conversion unit for converting a first image with a first resolution into a second image with a second resolution, the image conversion unit comprising:
  - a coefficient-determining means for determining a first filter coefficient on basis of pixel values of the first image;
  - 5 - an adaptive filtering means for calculating a second pixel value of the second image on basis of a first one of the pixel values of the first image and the first filter coefficient, characterized in that the adaptive filtering means is arranged to perform a non-linear operation.
- 10 2. An image conversion unit as claimed in claim 1, characterized in that the non-linear operation comprises clipping an intermediate value on basis of the first one of the pixel values.
3. An image conversion unit as claimed in claim 1, characterized in that the  
15 adaptive filtering means comprises an order statistical filter.
4. An image conversion unit as claimed in claim 3, characterized in that the order statistical filter is a differential order statistical filter.
- 20 5. An image conversion unit as claimed in claim 3, characterized in that the order statistical filter is a median filter.
6. An image conversion unit as claimed in claim 1, characterized in that the  
25 coefficient-determining means comprises a translating means for translating data being derived from pixel values in a neighborhood of the first one of the pixel values into the first filter coefficient, the translating means being designed on basis of a training process.
7. An image conversion unit as claimed in claim 6, characterized in that the translating means comprises a Look-Up-Table.

8. An image conversion unit as claimed in claim 1, characterized in that the coefficient-calculating means is arranged to calculate the first filter coefficient by means of an optimization algorithm.

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9. A method of converting a first image sequence, comprising a first image with a first resolution and a second image with the first resolution into a second image sequence comprising a third image with a second resolution, the method comprising:

10 - a step of determining a first filter coefficient on basis of pixel values of the first image;

- a step of calculating a second pixel value of the second image on basis of a first one of the pixel values of the first image and the first filter coefficient, characterized in that the step of calculating the second pixel value comprises a non-linear operation.

15 10. An image processing apparatus comprising:

- receiving means for receiving a signal corresponding to a first image; and
- the image conversion unit for converting the first image into a second image, as claimed in claim 1.

20 11. An image processing apparatus as claimed in claim 10, characterized in further comprising a display device (406) for displaying the second image.

12. An image processing apparatus as claimed in claim 11, characterized in that it is a TV.